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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of Krysiak et al.

Serial No.: 09/544,878

Group Art Unit: 3643

Filed: April 7, 2000

Examiner: Valenti, A.

For: SEEDING TREATMENTS

Box Response  
Assistant Commissioner for Patents  
Washington, D.C. 20231

**RESPONSE TO OFFICE ACTION**

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Sir:

This is in response to the Office Action mailed December 18, 2002.

The Examiner has rejected claims 6, 18, 19 and 21 as being anticipated by European Patent EPO 0010630 to Wieser. The Examiner states that regarding claims 19, 21 and 6, that Wieser teaches a method of making seed capsules (Page 1, lines 1-2) in a single apparatus by a tumbling/agitation agglomeration operation by preconditioning the seed with a binding agent while tumbling the seed; conditioning the seeds by tumbling the seed in a bed of fine particulate to create layers of matter about the seed (Page 4, lines 11-14).

Applicant submits the Declaration of Lee Hoffmann. Mr. Hoffmann has 27 years of experience in the field of agglomeration. (Hoffmann Declaration Para 1). Mr. Hoffmann has reviewed the application of the present invention, the Wieser European Patent EPO 0010630 and Simmons, 4,465,017. (Hoffmann Declaration Para 2 and 3).

In the world of agglomeration (particle size enlargement), there are four distinctively different types of processes: agitation, pressure, liquid and thermal.

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(Hoffmann Declaration Para 4). The process of the present invention is classified as agitation (lift and tumble), while the process disclosed and taught by Wieser and Simmons requires liquid agglomeration. This can be more clearly understood when the methods and equipment used to produce such products are explained below. (Hoffmann Declaration Para 5).

Agitation is defined as agglomeration by tumbling (growth). Particles are adhered together by use of balling drums, pans, cones and mixers via impact and tumbling. The resultant shape is a sphere. Agitation agglomeration can use the following equipment: mixers (planetary, cone, ribbon, pintype, drum, counter-current, vertical, paddle, pugmills), Disc pelletizers (pan granulators), drum pelletizers and cone pelletizers. (Hoffmann Declaration Para 6).

Pressure agglomeration utilizes methods such as extrusion presses, pelleting machines (pelletized), piston presses (tableting) and roller presses (briquetting, compacting). The pellets are formed by pressure imparted upon the materials. The resultant shape is a cylinder for products made with pelleting machines and extrusion presses. Pressure agglomeration can use the following equipment: roller presses (roll briquetters, roll compactors), piston/ram presses, pellet mills (ring die, flat die), extruders (auger, screw, screen, basket), tablet presses. (Hoffmann Declaration Para 7).

With Liquid agglomeration, the liquid spray solidifies into a solid. Liquid agglomeration can use the following equipment: spray dryers, prill towers, spray/fluid bed, granulators, mixers for oil agglomeration. (Hoffmann Declaration Para 8).

Thermal agglomeration requires the addition of an external heat source to result in particle bonding. Typical bonding includes sintering, induration, calcining, and a form of

flaking. This thermal flaking requires a device that spreads paste or melt as a thin film on the surface of a rotating drum: the film is then solidified by cooling water and scraped off the drum as flakes. Thermal agglomeration can use the following equipment: sinter strands, traveling grates, rotary kilns, shaft furnaces and drum/belt flakers. (Hoffmann Declaration Para 9).

Wieser relates to a liquid coating process. Wieser states on page 4, line 11, that a coating solution is conveniently applied to the seeds by spraying whilst the seeds are in motion. Wieser states on page 5, that the coating solution has a low viscosity. (Hoffmann Declaration Para 14).

Wieser relates to coating plant seeds with a binder and a fungicide with further optical ingredients. A binder solvent can also be added. The coating solution is most conveniently applied to the seeds by spraying whilst the seeds are in motion, conveniently in a tumbler, rotating drum or similar piece of equipment. Thereafter, the solvent is eliminated.

Using the organic binders described in the invention, plant protection agents may be applied in very thin coatings. The plant protection agents and other additives are applied in a liquid medium, usually in solution. Example 1 shows a coating solution is applied to a seed by spraying whilst the seed is tumbling in a rotating drum. Wieser describes coatings which are used to keep materials away from the seed such as fungicides.

The Examiner has rejected claims 6, 18, 19 and 21 as being anticipated by Wieser.

Claim 19 relates to a method of making seed capsules in a single apparatus by a tumbling/agitation agglomeration operation comprising: preconditioning the seed with a binding agent while tumbling the seed. The seeds are then conditioned by tumbling the seed in a bed of fine particulate to create layers of matter about the seed.

Wieser discloses using plant protection agents applied in very thin coatings, which are attached firmly to the seeds. By virtue of their thinness the coatings may be used for applying fungicides and other agents to large seeds with a **negligible increase in their size**. Therefore Wieser does not describe an agglomeration method. (Hoffmann Declaration Para 15).

Further, the machines and processes claimed in the present invention and Wieser are different. Wieser is a coating technique, not an agitation and tumbling agglomeration as claimed in the present invention. (Hoffmann Declaration Para 16). Wieser describes a liquid coating process and not an agglomeration operation comprising agitating and tumbling seeds with fine particulate in an apparatus for agglomeration which wraps the layer of fine particulate around the seed. (Hoffmann Declaration Para 19).

For the reasons stated above, claim 19 is not anticipated nor obvious over Wieser.

Claim 6 depends on claim 19 and adds the limitation that the apparatus is a rotary drum agglomerator.

For the reasons stated above, claim 6 is not anticipated nor obvious over Wieser.

Claim 21 depends on claim 19 and adds the limitation that the seeds are fed continuously into the apparatus.

For the reasons stated above, claim 21 is not anticipated nor obvious over Wieser.

Regarding claim 18, the Examiner states that Wieser discloses wrapping more than one nucleus/seed in layers of fine particles (Page 2 lines 4-5, lines 22-25, and page 3, lines 24-26).

Claim 18 depends on claim 19 and adds the limitation that the method comprises wrapping more than one nucleus/seed in layers of fine particles.

For the reasons stated above, claim 18 is not anticipated nor obvious over Wieser.

Regarding claim 20, the Examiner states that Wieser teaches the preconditioning of spraying a precoated material on the seed and subsequently driving off any binding agent used to apply the particulate layers on the seed. (Page 4, lines 14-17).

Claim 20 depends on claim 19 and adds the limitation that the preconditioning comprises spraying a precoated material on the seed and subsequently driving off any binding agent used to apply the particulate layers on the seed.

For the reasons stated above, claim 20 is not anticipated nor obvious over Wieser.

The Examiner has rejected claims 6, 18, 19 and 21, as being anticipated by US patent 4,465,017 to Simmons.

The process described by Simmons is a liquid agglomeration process. Simmons describes a seed coating machine comprising an upper mixing drum wherein a liquid adhesive coating is applied to the seed and where the rate of application is regulated by a valve controlled by the seed feeder. The coated seed is dried to a state of tackiness and passed to a second, lower mixing drum. A variety of powders are applied onto the tacky seed after being mixed and sifted in a screen distributor. (Hoffmann Declaration Para 11).

Seeds are coated with a first material such as a latex water composition. The moisture content of the latex coating is adjusted until the seeds are tacky. The tacky surfaced seeds are then coated with a dry superabsorbant chemical powder. The superabsorbant is added as a powder which adheres strongly to the tacky latex coating of the seed. The water and superabsorbant forms a thin layer of water laden gel around the seed. Col. 2 lines 6-7. (Hoffmann Declaration Para 12).

Regarding claims 6, 19 and 21, the Examiner states that Simmons teaches a method of making seed capsules (Col. 8 line 40 to Col. 9 line 9) in a single apparatus by a tumbling/agitation agglomeration operation by preconditioning the seed with a binding agent while tumbling the seed; conditioning the seeds by tumbling the seed in a bed of fine particulate to create layers of matter about the seed.

The machines and processes claimed in the present invention and Simmons are different. Simmons is a liquid coating technique, not an agitation and tumbling agglomeration as claimed in the present invention. (Hoffmann Declaration Para 13). Simmons describes a liquid coating process and not an agglomeration operation comprising agitating and tumbling seeds with fine particulate in an apparatus for agglomeration which wraps the layer of fine particulate around the seed. (Hoffmann Declaration Para 19).

For the reasons stated above, claim 19 is not anticipated nor obvious over Simmons.

Claim 6 depends on claim 19 and adds the limitation that the apparatus is a rotary drum agglomerator.

For the reasons stated above, claim 6 is not anticipated nor obvious over Simmons.

Claim 21 depends on claim 19 and adds the limitation that the seeds are fed continuously into the apparatus.

For the reasons stated above, claim 21 is not anticipated nor obvious over Simmons.

Regarding claim 18, the Examiner states that Simmons discloses wrapping more than one nucleus/seed in layers of fine particles. (Col. 8 line 39).

Claim 18 depends on claim 19 and adds the limitation that the method comprises wrapping more than one nucleus/seed in layers of fine particles.

For the reasons stated above, claim 18 is not anticipated nor obvious over Simmons.

Regarding claim 20, the Examiner states that Simmons teaches the preconditioning of spraying a precoated material on the seed and subsequently driving off any binding agent used to apply the particulate layers on the seed. (Col. 7 line 41).

Claim 20 depends on claim 19 and adds the limitation that the preconditioning comprises spraying a precoated material on the seed and subsequently driving off any binding agent used to apply the particulate layers on the seed.

For the reasons stated above, claim 20 is not anticipated nor obvious over Simmons.

The Examiner has rejected claims 4-17 and 22 as being obvious over European Patent EPO 0010630 to Wieser.

Wieser relates to a liquid coating process and not an agglomeration operation comprising an agitating and tumbling of seeds with fine particulate in an apparatus for agglomeration which wraps the layers of fine particulate around the seed. Plant protection agents are applied in very thin coatings. The plant protection agents and other additives are applied in a liquid medium, usually in solution.

Wieser discloses using plant protection agents applied in very thin coatings, which are attached firmly to the seeds. By virtue of their thinness the coatings may be used for applying fungicides and other agents to large seeds with a **negligible increase in their size**. Therefore Wieser does not describe an agglomeration method. (Hoffmann Declaration Para 15).

Regarding claims 4-17, the Examiner states that Wieser teaches an agglomeration process utilizing a tumbler or rotating drum, but Wieser is silent on specifically identifying a pan pelletizer, disk pelletizer, balling disk, paddle mixer, horizontal pan, powder blenders, flow-jet mixer, planetary mixer, cone mixer, ribbon mixer, pin type mixer, vertical mixer, pin mixer, cone pelletizer, fluidized bed. However, these apparatuses are all old and well known seed coating or mixing machines. The Examiner states it would have been obvious to modify the teachings of Wieser with any of the machines listed in claims 4-17 since these are merely alternate equivalent agglomeration machines that perform the same intended function of agglomerating particles with a coating and one would select a particular agglomeration machine to satisfy different economic, maintenance, and time parameters and to accommodate different types of fertilizers or nutrient coatings.

The lift and tumble agglomeration process/machine is a different and unique

process from the liquid agglomeration process. As stated above different products are produced by using different agglomeration methods. Further the equipment used by liquid agglomeration and lift and tumble are different. The selection of a particular agglomeration machine is based on the type of process and product one wishes to produce, not to satisfy different economic and time parameters or to accommodate different types of fertilizer or nutrient coatings. (Hoffmann Declaration Para 18).

For the reasons stated above claims 4-17 are not obvious over Wieser.

Regarding claim 22, the Examiner states that Wieser is silent on the preconditioning and conditioning steps are repeated to add additional layers to the seed. However, the Examiner states that it would have been obvious to modify the teachings since the modification is merely duplicating the process to provide a more comprehensive seed coat and does not present a patentably distinct limitation.

For the reasons stated above, claim 22 is not obvious over Wieser.

The Examiner has rejected claims 4-17 and 22 as being obvious over Simmons, 4,465,017. Regarding claims 4-17, the Examiner states that Simmons teaches an agglomeration process utilizing a tumbler or rotating drum (Col. 8 line 40-Col. 9 line 14), but Simmons is silent on specifically identifying a pan pelletizer, disk pelletizer, balling disk, paddle mixer, horizontal pan, powder blenders, flow-jet mixer, planetary mixer, cone mixer, ribbon mixer, pin type mixer, vertical mixer, pin mixer, cone pelletizer, fluidized bed. However, these apparatuses are all old and well known seed coating or mixing machines. The Examiner states it would have been obvious to modify the teachings of Simmons with any of the machines listed in claims 4-17 since these are merely alternate equivalent agglomeration machines that perform the same intended

function of agglomerating particles with a coating and one would select a particular agglomeration machine to satisfy different economic, maintenance, and time parameters and to accommodate different types of fertilizers or nutrient coatings.

The lift and tumble agglomeration process/machine is a different and unique process from the liquid agglomeration process. As stated above different products are produced by using different agglomeration methods. Further the equipment used by liquid agglomeration and lift and tumble are different. The selection of a particular agglomeration machine is based on the type of process and product one wishes to produce, not to satisfy different economic and time parameters or to accommodate different types of fertilizer of nutrient coatings. (Hoffmann Declaration Para 18).

For the reasons stated above claims 4-17 are not obvious over Simmons.

Regarding claim 22, the Examiner states that Simmons is silent on the preconditioning and conditioning steps are repeated to add additional layers to the seed. However, the Examiner states that it would have been obvious to modify the teachings since the modification is merely duplicating the process to provide a more comprehensive seed coat and does not present a patentably distinct limitation.

For the reasons stated above, claim 22 is not obvious over Simmons.

Applicant believes the application is now in condition for allowance.

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March 17, 2003

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